REMARKS

Attached hereto is a marked-up version of the changes made to the specification and the claims by the current amendment. The attached page is captioned **"VERSION WITH MARKINGS TO SHOW CHANGES MADE."**

Enclosed is a check in the amount of $546.00 to cover the additional claims (7 new claims x 18.00 = $126.00) plus (5 independent claims - only 1 independent claim was initially filed - X $84.00 = $420.00). The Assistant Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. 50-1752.

A prompt examination and allowance is respectfully solicited. If there are any additional questions, please contact me at your earliest convenience.

Respectfully submitted,

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

In the Specification:

(1.) The following paragraph was added prior to the BACKGROUND OF THE INVENTION:

CROSS REFERENCE TO RELATED APPLICATIONS

The subject invention is related to copending application entitled "Method and Apparatus for Collecting, Sending, Archiving and Retrieving Motion Video and Still Images and Notification of Detected Events," Serial Number 09/853,274, filed on May 11, 2001 and incorporated by reference herein.

(2.) The following changes were made to page 2, lines 10-14:

These prior-art monitoring devices often use technologies that are not 'intelligent' in the modern sense; they merely provide an 'ON/OFF' indication to the centralized monitoring system. The appliances also are not 'networked' in the modern sense; they are generally hard-wired to the centralized monitoring system via a 'current loop' or similar arrangement, and do not provide situational data other than their ON/OFF status.

(3.) The following changes were made to page 3, lines 13-22:

Prior-art surveillance systems are oriented towards delivering a captured video signal to a centralized monitoring facility or console. In the case of analog composite video signals, these signals were transported as analog signals over coaxial cable or twisted-pair wiring, to the monitoring facility. In other systems, the video signals were compressed down to low bit rates, suitable for transmission over the public-switched telephone network on the Internet._Each of these prior-art systems suffers functional disadvantages. The composite video/coaxial cable approach provides full-motion video but can only convey it to a local monitoring facility. The low-bit rate approach can deliver the video signal to a remote monitoring facility, but only with severely degraded resolution and frame rate. Neither approach has been designed to provide access to any available video source from several monitoring stations.

(4.) **The following changes were made to page 3, lines 23-27:**

Another commonplace example is the still-image compression commonly used in digital cameras. These compression techniques may require several seconds to compress a captured image[,] but once done, the image has been reduced to a manageably small size, suitable for storage on inexpensive digital media (e.g., floppy disk) or for convenient transmission over an inexpensive network connection (e.g., via the internet over a 28.8 kbit/sec modem).

(5.) **The following changes were made to page 4, lines 7-17:**

These "closed circuit television" systems typically consist of a monochrome or color television camera, a coaxial cable, and a corresponding monochrome or color video monitor, optional VCR recording devices, and power sources for the cameras and monitors. The interconnection of the camera and monitor is typically accomplished by the use of coaxial cable, which is capable of carrying the 2 to 10 megahertz bandwidths of baseland closed circuit television systems. There are several limitations to coaxial cable supported systems. First, the cable attenuates by the signal in proportion to the distance traveled. Long distance video transmission on coaxial cable requires expensive transmission techniques. Second, both the cable, per se, and the installation [is]<u>are</u> expensive. Both of these limitations limit practical use of coaxial closed circuit systems to installations requiring less than a few thousand feet of cable. Third, when the cable cannot be concealed is not only unsightly, but is also subject to tampering and vandalism.

(6.) **The following changes were made to page 4, lines 18-30 to page 5, lines 1-9:**

Other hardwired systems have been used, such as fiber optic cable and the like, but have not been widely accepted primarily due to the higher costs associated with such systems over coaxial cable. Coaxial cable, with all of its limitations, remains the system of choice to the present day. Also available are techniques using less expensive and common twisted pair cable such as that commonly used for distribution of audio signals such as in telephone or office intercom applications. This cable is often referred to as UTP (twisted-pair) or STP (shielded twisted-pair) cable. Both analog and digital configurations are available [Both analog] and [digital techniques] have been implemented. This general style of twisted pair cable, but in a more precise format, is also widely used in Local Area Networks, or LAN[']s, such as the 10Base-T Ethernet system, 100 Base-T, 1000

Base-T and later systems. Newer types of twisted pair cable have been developed that have lower capacitance and more consistent impedance than the early telephone wire. These newer types of cable, such as "Category 5" wire, are better suited for higher bandwidth signal transmission and are acceptable for closed circuit video applications with suitable special digital interfaces. By way of example, typical audio voice signals are approximately 3 kilohertz in bandwidth, whereas typical video tele[c]vision signals are 3 megahertz in bandwidth or more. Even with the increased bandwidth capability of this twisted pair cable, the video signals at base band (uncompressed) can typically be distributed directly over twisted pair cable only a few hundred feet. In order to distribute video over greater distances, video modems (modulator/demodulators) are inserted between the camera and the twisted pair wiring and again between the twisted pair wiring and the monitor. Twisted pair cable is lower in cost than coaxial cable and is easier to install. For the longest distances for distribution of video, the video signals are digitally compressed for transmission and decompressed at the receiving end.

(7.) The following changes were made to page 5, lines 22-29:

Because of the inherent limitations in the various closed circuit television systems now available, other media have been employed to perform security monitoring over wider areas. This is done with the use of CODECs (compressors/decompressors) used to reduce the bandwidth. Examples include sending compressed video over standard voice bandwidth telephone circuits, <u>and</u> more sophisticated digital telephonic circuits such as frame relay or ISDN circuits and the like. While commonly available and relatively low in cost, each of these systems is of narrow bandwidth and incapable of carrying "raw" video data such as that produced by a full motion video camera, using rudimentary compression schemes to reduce the amount of data transmitted. As previously discussed, full motion video is typically 2 to 10 megahertz in bandwidth while typical low cost voice data circuits are 3 kilohertz in bandwidth.

(8.) The following changes were made to page 7, line 12-16:

In many security applications it is desirable to monitor an area or situation with high resolution from a monitor located many miles from the area to be surveyed. As stated, none of the prior art systems readily available accommodates this. Wide band common carriers [such as]<u>that</u> are

used in the broadcast of high quality television signals could be used, but the cost of these long distance microwave, fiber or satellite circuits is prohibitive.

(9.) The following changes were made to page 8, lines 8-15:

In my above described applications, each camera additionally performs motion detection within its captured scene, by analyzing differences between periodically sampled scenes. Upon detection of a motion event, the camera may take a variety of actions, including

- Storing a still-image of the scene containing motion
- Commanding a remote server to store the image
- Storing the scene captured immediately prior to the motion event
- Commanding a remote viewing station to display live video from the camera
- Commanding the server to store live video from the camera.

(10.) The following changes were made to page 9, lines 15-16:

The portable unit may also include a camera by which both video and still images may be captured for transmission to the hub via the wireless link.

(11.) The following changes were made to page 9, lines 28-30 to page 10, lines 1-4:

Wireless networks typically have limited bandwidth. As mentioned, a wired network may carry several dozen streams of 1 Megabit/second video. Common wireless networks, however, are typically far more bandwidth-constrained. Typical IEEE 802.11 wireless LAN[']s support a maximum bandwidth of 11 MB/s. Moreover, in wireless networks it is common practice to 'trade-off' network speed in exchange for improved bit-error-rate. In other words, greater distances may be obtained by sacrificing network speed. This makes bandwidth on a wireless network even more precious than on a wired network.

(12.) The following changes were made to page 11, lines 9-11:

It is an additional object and feature of the subject invention to provide visible indication of signal quality (can discuss "strength" which is one way, and "buffer status" which is another way, or a hybr[e]id of the received signals at the wireless, portable module.

(13.) The following changes were made to page 11, lines 18-22:

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 illustrates a system diagram for a wireless system.

Fig. 2 illustrates a wireless system having a multicast/unicast routing component.

Fig. 3 is an expansion of the diagram of Fig. 1[8] to better illustrate the multicast/unicast features.

Fig. 4 illustrates the use of the packet buffer as a signal strength generator.

(14.) The following changes were made to page 12, lines 13-15:

This transmitter["] can be an industry standard wireless LAN such as from Aeronet (now Cisco) with chips from Intersil and others, using IEEE 802.11B or other suitable standard protocols.

(15.) The following changes were made to page 13, lines 2-5:

The portable unit may also include a camera by which both video and still [imagemay]<u>images may</u> be captured for transmission to the hub via the wireless link and allows adding stills or motion data to the server's archive database for future retrieval, or provides the capability for other monitor stations to receive the video and stills on a real time or near real time basis.

(16.) The following changes were made to page 14 lines 5-16:

Figure 1 illustrates <u>such</u> a representative [such] network. A plurality of compressed digital multicast cameras 30A through 30N are connected to a wired network, typically through a network switch or router 31. One or more monitor stations 33 may be connected by network wiring to the network. A server 32 is connected to the network, and is used for image archival, event or alarm processing, or serving appropriate HTML pages to clients viewing cameras or browsing the image database. In addition, a wireless network is connected to the network router or switch 31. The wireless network consists of a number of wireless hubs 34A through 34N, disposed at various sites around the facility. The wireless hubs 34A through 34N may be interconnected via a multi-drop topology such as 10Base-T or equivalent, or may use a series of network hubs (not shown). One or more wireless clients 37 or 39 are free to roam the facility, connecting to the wired network via

antennae 35A through 35N, 36 and 38. These wireless clients may use the network to receive selected camera video streams or view selected images from the image storage database.

(17.) The following changes were made to page 15, lines 18-24:

In the present invention, this is accomplished with a bar graph display, shown on the client's screen, showing the current receiver buffer fullness. Figure [3]<u>4</u> illustrates the concept. The overall wireless network 70 communicates with the client's Wireless Network Interface 73 via antennas 71 and 72. As incoming packets are received, they are placed in the client's receive buffer 74, which is organized as a First-in, First-out (FIFO) buffer. Packets are removed from the buffer 74 in sequence according to timestamps generated by the originating video source. These packets are forwarded to the video decoder 75 and display screen 76 for viewing.

(18.) The following changes were made to page 15, lines 25-30:

Since the video stream is continuous, the receiver normally removes packets from the buffer at a rate equal to that of the transmitter. When the client begins receiving a selected stream, the system accumulates received packets in the buffer until the receive buffer contains some number of packets. In the present invention, the buffer level is nominally set to 20. The system then begins removing and displaying the received packets <u>as a video image 78</u>. Note that this process introduces some delay into the system - the delay equals the amount of time required to receive 20 packets.

<u>In the Claims:</u>

Claim 1 has been amended as follows:

1. A surveillance system having <u>a</u> wireless, portable monitoring module for use in connection with a video/image surveillance system having a remote camera, comprising:

   a. A remote camera for collecting and transmitting digital signals represent<u>ing</u> video/images in the range of the camera;

   b. A hub for receiving the signals;

   c. A transmitter associated with the hub for transmitting the signals via a wireless transmission system;

d. A portable monitoring station [associated] having a receiver associated herewith and adapted for receiving the signals transmitted by the transmitter for displaying the signals as a video/image display thereat.

Claim 4 has been amended as follows:

4. The surveillance system of claim 3, wherein the plurality of signal<u>s</u> generated by the camera includes a QSIF signal.

Claim 11 has been amended as follows:

11. The surveillance system of claim 10, wherein the transmitter and <u>the receiver</u> is an 802.11 type.

Claim 12 has been amended as follows:

12. The surveillance system of claim 10, wherein the transmitter and <u>the</u> receiver is a wireless IP type.

Claim 20 has been amended as follows:

20. The surveillance system of claim 13, wherein the camera control signals include [a] encoder configuration controls.

Claim 25 has been amended as follows:

25. The surveillance system of claim 24, wherein the flow of information through the buffer memory is utilized to indicate <u>a</u> signal strength of the signal transmitted from the hub to the portable module.

Claims 42-48, which contain no new matter, are added:

42. (new) A method for receiving a multicast stream, comprising:

receiving multicast traffic from a plurality of multicast cameras at a wireless unicast server and at a switch;

selecting, by the wireless unicast server, a desired multicast stream as defined by a wireless client;

forwarding, by the wireless unicast server, the selected multicast stream to the switch;

blocking, by the switch, the multicast traffic;

forwarding, by the switch, the selected multicast stream;

receiving, by a wireless hub, the selected multicast stream; and

forwarding, to the wireless client, the selected multicast stream.

43. (new) A method for receiving a multicast stream, comprising:

receiving multicast traffic at a wireless unicast server and at a switch;

selecting, by the wireless unicast server, a desired multicast stream as defined by a wireless client;

forwarding, by the wireless unicast server, the selected multicast stream to the switch;

blocking, by the switch, the multicast traffic;

forwarding, by the switch, the selected multicast stream; and

receiving, by the wireless client, the selected multicast stream.

44. (new) A method for receiving a video stream, comprising:

requesting, by a wireless client, a desired video stream;

receiving, by a wireless unicast server, the request;

opening, by the wireless unicast server, a socket to a multicast video source;

if the multicast video source socket has been opened, opening, by the wireless unicast server, a unicast socket to the wireless client; and

receiving, from the multicast video source, the desired video stream at the wireless client.

45. (new) A method for determining a radio frequency link performance, comprising:

receiving packets via a wireless network from an originating video source;

placing the packets in a buffer;

removing the packets from the buffer in a first-in, first-out sequence according to timestamps generated by the originating video source;

receiving the packets at a video decoder;

displaying the packets on a display screen; and

if the rate of placing the packets in the buffer decreases below a threshold, determining a radio frequency link performance.

46. (new) A method for determining a radio frequency link performance, comprising:

receiving packets via a wireless network from an originating video source;

placing the packets in a buffer;

removing the packets from the buffer in a first-in, first-out sequence according to timestamps generated by the originating video source; and

if the rate of placing the packets in the buffer decreases below a threshold, indicating a decreased radio frequency link performance on a screen adapted to display the packets.

47. (new) A method for determining a radio frequency link performance, comprising:

receiving packets at a buffer from an originating video source;

removing the packets from the buffer according to timestamps generated by the originating video source; and

indicating a rate of placing the packets in the buffer, wherein the rate indicates a radio frequency link performance.

48. (new) A method for determining a radio frequency link performance, comprising:

receiving packets at a buffer from an originating video source;

removing the packets from the buffer according to timestamps generated by the originating video source; and

indicating a rate of placing the packets in the buffer and removing the packets from the buffer, wherein the rates indicates a radio frequency link performance.